
Space Weather Forecast

Issued on Thursday, 28 March 2024 at 13:05 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Further Minor/Moderate radio blackouts (R1/R2) expected.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate with a Moderate-class flare from the large region in the southwest quadrant peaking at 28/0629 UTC. Five sunspot regions feature on the visible disc. The large region in the southwest quadrant (AR3615) is the most magnetically complex group, but it is becoming more difficult to assess as it approaches the limb. The remaining regions are comparatively simple and smaller, with little change.

No significant Earth-directed Coronal Mass Ejections (CMEs) were observed on available imagery over the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind at L1 measured by ACE and DSCOVR started at elevated levels (around 530km/s) following the weekend CME that arrived on the 24th March, with a steady decline to slightly elevated levels around 430km/s at time of writing. The magnetic field (IMF) was at weak levels, with the important north-south component fluctuating weakly between positive and negative. The net result of the above solar wind measures was Quiet to Unsettled geomagnetic conditions.

Energetic Particles / Solar Radiation: Solar radiation was below the S1/Minor storm threshold.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate solar activity is expected to continue, with further Moderate-class flares expected primarily from the large sunspot region located in the southwestern quadrant of the visible disc, and a chance of an isolated Strong-class flare.

Solar Wind / Geomagnetic Activity: A coronal mass ejection (CME) associated with the strong flare on the 23rd March arrived at L1 at 24/1410UTC. There are no newer significant Earth-directed CMEs currently in the forecast. Solar winds will decline towards background levels and geomagnetic activity is expected to be Quiet to Unsettled.

Energetic Particles / Solar Radiation: Solar radiation is continuing to decline from recent enhancement. A continued slow decline is expected in the absence of further significant flare activity.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	Yes	70	70	70	40
Very Active	R3 to R5 X	No	20	20	20	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	20	20	20	20
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)